Transit: The Nature and Role of Localized Benefits A Selected Annotated Bibliography

by Mary Rawson

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Centre for Transportation Studies
University of British Columbia

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CONTENTS

	Page
FOREWARD	i
1. General Studies in Transportation	1
2. Studies of Rapid Transit	2
3. Benefit Studies in General	6
4. Benefit Studies Related to Transportation	8
5. Measuring Benefits -- Land Value	14
6. Evaluation of Value-Capture Mechanisms	20
A. Annual tax on "real property" value	20
B. Annual or incremental tax on site value only (including special assessment)	22
C. Excess condemnation	25
D. Joint development and "Deal Making"	26
E. Replotting	27
7. Useful Illustrations	27
8. Miscellaneous	30
AUTHOR INDEX	32

FOREWORD

Efficient transit services are important to urban areas. As urban population has increased, it has been desirable to increase the level of those services. Unfortunately, this has become increasingly difficult as the services have become expensive and as a declining share of their costs has been payed directly by the users. The result is a great pressure on governments to find ways in which the operating losses and capital requirements of transit can be financed. Various methods are used. One which is often suggested is little used; that is financing transit from the increases in land and property values which are frequently associated with an improvement in the services.

In 1928, A.C. Pigou Professor Emeritus of Public Finance at Cambridge University stated that " ... [if] the State commandeers a piece of land to enable a tramway to be built to the outskirts of a town, with the result that the surrounding land is made more valuable, the owners of the surrounding land ought plainly to pay." (In A Study in Public Finance.) In spite of the appeal of the notion, the owners of land which increases in value because of transit services are rarely called on to bear a special share of the costs.

As the difficulty of financing transit becomes more severe, so interest in land and property values as a source of funding increases. However, the large amount of literature on rapid transit has surprisingly little on the distribution of benefits which is of value when considering the funding of the services.

Mary Rawson has prepared this annotated bibliography to provide a useful guide to others interested in the geographic distribution of benefits. She was aided in her work by a research grant from the Canadian Research Committee on Taxation. This assistance is gratefully acknowledged. The Centre for Transportation Studies is pleased to publish this bibliography and, thereby, to facilitate research for the development and financing of transit.

Trevor D. Heaver
Director
Centre for Transportation Studies

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1. GENERAL STUDIES OF TRANSPORTATION

Altshuler, Alan; Womack, James P.; and Pucher, John R. The Urban Transportation System. Cambridge, Mass.: MIT Press, 1979.

Comprehensive textbook which, in quoting from several studies, indicates a difference of opinion as to the impact of rapid transit.

Beesley, M.E. Urban Transport: Studies in Economic Policy. London: Butterworths, 1973.

Reproduces many of his earlier own and joint articles, including the much referenced "Estimating the Social Benefits of Constructing an Underground Railway in London." Joint author, C.D. Foster. See Section 2 below.

Daniels, P.W. and Warnes, A.M. Movement in Cities. London: Methuen, 1980.

Recent text. Useful but extremely condensed section on public transport and land use distribution.

Gray, George E. and Hoel, Lester A., eds. Public Transportation: Planning, Operations, and Management. Englewood Cliffs, N.J.: Prentice-Hall, 1979.

Relies on the study of E.H. Spengler for an assessment of the impact of transit.

Haines, Richard L. "The Politics of Economics in Transit Planning." Urban Affairs Quarterly 14 (September 1978): 55-77.

An excellent article which points out that the choice made among professional experts is intrinsically a political one. "Expert policy recommendations bear close scrutiny on political as well as technical grounds."

Harrison, A.J. Economics of Transport Appraisal. New York: Wiley, 1974.

Land values and accessibility are related. "Insofar as we are not concerned with the distribution of benefit between owners of

property ... the complexities of the ultimate incidence of benefits can be ignored."

Kabak, Bernard Joshua. "Transportation and Development: A Case Study of New York City." Transportation, Engineers Institute, Tel Aviv, Israel. (1974): 84-91.

A good history from the beginning of New York's development; the steamboat era, construction of the Erie Canal and its effects, Brooklyn Bridge, the early subways.

Roseman, Cyril. "Rationality in Urban Problem Solving: Transportation." Urban Affairs Quarterly (Book review) 3/2 (December 1967): 79-89.

A critical review of several books on transportation; challenges Fitch (1964), Meyer/Kain (1966), Owen (1966), Pell (1966), and Smerk (1965) as not rational.

World Conference on Transportation Research 1980. J. Stuart Yerrell, ed. 4 vols.

An important series. Of the four volumes in the 1980 report, amounting to 2,726 pages in all, only one page (in the Passwell article) deals with land value. This confirms the emphasis of the transportation literature generally.

2. STUDIES OF RAPID TRANSIT

Bay Area Rapid Transit (BART) Impact Program. Washington, D.C.: U.S. Dept. of Transportation and U.S. Dept. of Housing and Urban Development, 1979.

The Bay Area Rapid Transit impact program comprises several technical reports issued during 1978 and 1979 written by various authors. Of this study Program, the series by John Blayney and Associates is most relevant.

Blayney, John & Associates, and David M. Dornbusch & Co. The Land Use and Urban Development Impacts of BART: Final Report. Metro Transit Commission. Washington, D.C.: U.S. Dept. of Transportation and U.S. Dept. of Housing and Urban Development, 1979.

Summarizes 15 reports dealing with BART impacts in relation to its planning which started in the 1950's, its construction in

the 1960's, and its operation from 1974 to 1977. Cost-benefit analysis is specifically stated as not an aim of their study, a caveat that casts doubt on certain key conclusions and may explain confusions and conflicts apparent on close reading.

Boorse, J.W., Jr. Rapid Transit in Canada. Philadelphia, Pa.: Almo Press, 1967.

This is a factual early non-academic summary of urban rail commuter developments in Canada, including Canadian Northern's 1912 tunnel through Mount Royal. Photographs.

Boyce, David E. "Assessing Impact of Urban Transportation." Transportation Engineering Journal 98 (1972): 645-662.

Report of a series of studies being generated in the Regional Science Department of the University of Pennsylvania in connection with extension of the Lindenwold line in New Jersey. The studies test the appropriateness of various theories of transit's impact on land value.

B.C. Department of Highways. Rail-rapid transit for Metropolitan Vancouver. Vancouver: B.C. Research Council, 1962.

Reviews three possible routes, one of which lies along the old interurban line. Reports that Los Angeles, San Francisco, Atlanta, Washington and Montreal all have plans for RT, none yet adopted. Makes no reference to the question of financing.

Davis, Donald F. "Mass Transit and Private Ownership: An Alternative Perspective on the Case of Toronto." Urban History Review No. 3-78 (1978): 60-98.

Claims that early electric railways functioned as 'loss leaders' for the real estate business.

DeLeuw Cather & Co. Report on the Greater Vancouver Area Rapid Transit Study. 1970.

Summarizes influence of rapid transit on Toronto, Montreal and San Francisco but is short on proof.

Doucet, M.J. "Mass Transit and the Failure of Private Ownership: The Case of Toronto." Urban History Review No. 3-77 (1978): 3-33.

One side of an argument (see Davis, Donald F. for another.)

Fischler, Stanley I. Moving Millions: An Inside Look at Mass Transit. New York: Harper & Row, 1979.

Worth scanning, especially the chapter entitled "New York - How They Killed the Golden Subway"; throws light on the subway politics avoided by scholars more contemporary with events.

Foster, C.D. and Beesley, M.E. "Estimating the Social Benefits of Constructing an Underground Railway in London." Journal of the Royal Statistical Society 126/1 (1963): 46-58.

One of the earliest of cost-benefit studies in the transit literature, evidently heavily relied on by later writers.

Hamer, Andrew M. The Selling of Rail Rapid Transit. Toronto: D.C. Heath and Co., 1976.

A well written, thorough, extremely critical, well documented analysis of professional reports on rapid transit. Extensive bibliography.

Heenan, G. Warren. "Rapid Transit and Property Value." Community Planning Review 7 (Spring 1967): 5-9.

An early booster article making reference to history of the Yonge Street project, Toronto.

Heenan, G. Warren. "The Economic Effect of Rapid Transit on Real Estate Development." Appraisal Journal 8 (April 1968): 213-224.

As above, but with more specific citation of value increase, and relation to zoning policies.

Herbert, Larry. "Community Consequences of Rapid Transit." Thesis, Department of Community and Regional Planning, University of British Columbia, 1969.

Well written Master's thesis in planning. Good factual and illustrative material on three cities -- Cleveland, Chicago and Toronto. Postulates results of theoretical transit locations in Vancouver.

Knight, Robert L. and Trygg, Lisa L. Land Use Impacts of Rapid Transit: Implications of Recent Experience: Final Report. (DeLeuw, Cather & Co.) Washington, D.C.: U.S. Department of Transportation, 1977.

Recent and comprehensive references of U.S. and Canadian experience. Focus on land use "rather than property value impacts" but does not omit the latter altogether. This is a useful and interesting document, with a good bibliography. No startling policy recommendations for Federal policy.

Paaswell, Robert E. and Berechman, Joseph. "Transit Investment and its Returns." in World Conference on Transportation Research 1980, v. 2, 1226-1243.

An excellent approach to forecasting the expected impacts of a new light rail line in Buffalo, New York, some interesting parallels with Vancouver.

Parkinson, Tom E. A Preliminary Study of Light Rapid Transit in Vancouver. Vancouver: Greater Vancouver Regional District, 1972.

Describes routes, engineering aspects, expected ridership, and cost estimates; nothing on how to pay for the facility.

Poulton, M.C., ed. Light Rail Transit in Vancouver -- Costs, Potential and Alternatives. Centre for Transportation Studies, University of British Columbia, 1980.

A series of student reports of good quality, each of which deals with a single facet, e.g. history of the proposal, costs, benefits, etc.

Ruth, Herman D. & Assoc. "The Impact of Rapid Transit on Urban Development. BART as a Case Study." Transportation, Engineers Institute, Tel Aviv, Israel. (1974): 24-35.

An objective history of rapid transit in the Bay Area of San Francisco from 1937 to the present day.

Spengler, Edwin H. Land Values in New York in Relation to Transit Facilities. New York: Columbia University Press, 1930.

The single outstanding study of early public rapid transit in New York, unmatched anywhere and still relevant. Significant appendices.

Warner, S.B. Streetcar Suburbs. 2nd ed. Cambridge, Mass.: Harvard University Press, 1978.

This Ph.D. thesis description of transit effects on Boston, copyrighted in 1962 and published in 1968, is uniformly regarded as both singular and excellent. In his introduction to the 1978 edition Warner says: "(the researcher) would be well advised to spend more time with the evidence of land ownership and speculation."

3. BENEFIT STUDIES IN GENERAL

Beach, Donald R. "Preparation and Use of Land Value Maps" in Daniel M. Holland, ed. The Assessment of Land Value. The Committee on Taxation, Resources and Economic Development (TRED) Publication 5. Madison, Wisc.: University of Wisconsin Press, 1970, 83-100.

Beach supposes that ordinarily several factors "benefit" residential areas, for example -- schools, parks, shopping, and transportation -- and proposes, "by drawing circles approximately one-quarter mile apart on a radius line," and by spotting sales, to make reasonable generalizations of benefit.

Coughlin, Robt. E. and Hammer, Thos. R., "Estimating the Benefits of Stream Valley and Open Space Preservation Projects." in C. Lowell Harriss, ed. Government Spending and Land Values. The Committee on Taxation, Resources and Economic Development (TRED) Publication 6. Madison, Wisc.: University of Wisconsin Press, 1973, 155-170.

A valuable study of rent gradients relative to location of city and regional parks.

Ferguson, John R. "Business Today." in The Montreal Star. 1969-1970.

Financial analyst series of articles raises questions as to the performance of Canadian credit and financial markets in relation to government monetary and tax policies. Claims that the benefit approach is a business approach. See especially "Protest before vested interests get dug in." 19 December 1969, p. 10, and "Let growth take care of cost of social services." 10 October 1970, p. 8.

Gaffney, M. Mason. "The Benefits of Military Spending." Unpublished Ms. 1973.

A paper presented at the 10th Annual Conference, Committee on Taxation, Resources and Economic Development, Madison, Wisc., October 25, 1971. (C. Lowell Harriss, Chairman and Editor of Proceedings.) This provocative analysis of military spending as a 'benefit' may account for its exclusion from the Harriss volume (1973).

Gilli, J.P. "Urban Development Law in France." Plan Canada 9/3 (1968): 123-134.

French law is framed on the basis that any area development project automatically benefits the area that it is in.

Harriss, C. Lowell, ed. Government Spending and Land Values. The Committee on Taxation, Resources and Economic Development (TRED) Publication 6. Madison, Wisc.: University of Wisconsin Press, 1973.

"The results of government spending are not always those intended." This compilation of papers illustrates the economic processes leading to the inevitable, but presumably unintended, diversion of benefit from one sector to another. Examples explored include, among others, agricultural subsidies, and transportation.

Howe, Frederic C. The City: The Hope of Democracy. 1905. Re-issued with an Introduction by Otis Pease. Seattle, Wash.: University of Washington Press, 1967.

A spirited and influential economic interpretation of the city by an American Progressive; re-issued, with an excellent introduction providing the necessary historical context.

Macon, Jorge and Manon, Jose Merino. Financing Urban and Rural Development through Betterment Levies. New York: Praeger, 1977.

Originally published in Spanish, this modern study of Latin American countries is oriented to the general problem of financing public works. It is an unparalleled exposition of both theoretical and practical questions encountered in benefit studies. Shortened edition available in English under the above title.

Pigou, A.C. A Study in Public Finance. 3rd ed. London: Macmillan & Co. Ltd., 1951.

A classic study of the proper approach to financing undertakings operated by public authorities, first published in 1928. Pigou is as concerned with moral questions of fairness as with economic analysis in itself.

Tucker, Gilbert M. The Self-Supporting City. New York: Robert Schalkenbach Foundation, 1958.

A lively essay on the theme that New York City is a vast corporation which has more property and resources than many another, yet fails to benefit proportionately. Point of view similar to that of F.C. Howe.

4. BENEFIT STUDIES RELATED TO TRANSPORTATION

Abouchar, Alan. Transportation Economics and Public Policy: With Urban Extensions. New York: John Wiley & Sons, 1977.

Chapter 13 Measurement of benefits. Chapter 17 Analysis of Toronto MLS residential sales in relation to the subway. Reasoning difficult to follow.

Bahl, Roy W. A Bluegrass Leapfrog. Bureau of Business Research, College of Commerce, University of Kentucky, Lexington, 1963.

The effects of new highway routes on the outskirts of Lexington. Skipped-over lands received a subsidy on their taxes; in effect, tax policies had invited speculation in land.

Balfour, Frank C. "California's Land Economic Studies Along Controlled-Access Highways." Traffic Quarterly 12/1 (January 1958): 17-29.

An early study of land value patterns resulting from highway corridors and access points.

Barrell, David. Cost Benefit Analysis in Transportation Planning. Oxford Working Papers in Planning Education and Research, 10. Headington, England, Dept. of Town Planning, Oxford Polytechnic, 1972.

A useful commentary on and evaluation of four cost-benefit studies, including that of Foster and Beesley. The treatment of equity, i.e. its omission, is seen to be the chief failing in cost benefit analysis in transportation planning.

Bay Area Citizens to Save BART. Untitled presentations to BART Board of Directors and the Board of Supervisors of San Francisco City and County. January/February 1969. (Mimeographed.)

The presentations consist of argument supporting the Mills Act which provided the option of financing BART (Bay Area Rapid Transit) on the basis of benefit districts.

Berkeley California Metropolitan Transportation Commission. BART Impact Program Reports. Nos. 1-19. Prepared for U.S. Department of Transportation, Washington, D.C. 1979.

Reports dealing with the impact of the Bay Area Rapid Transit (BART) system. In spite of the enormous amount of money and effort spent on these studies, certain of the conclusions, particularly in regard to benefits, do not appear to be supported by documentation.

Calgary, Alta. City Planning Dept. Chinook Station Area Land Use Study. 1979.

The report states that the majority of walk-on passengers will live or work within "a radius of 400 m (1/4 mile) ... or about a five minute walk from the Station." The area is described as the "Primary Impact Area." No reference or bibliography is cited.

Clark, Colin. Population and Depopulation. The 11th Monash Economics Lecture. Monash University, Clayton, Victoria, Australia. 3 October 1977. (Pamphlet.)

A pamphlet of 23 pages. Its wide-ranging subject matter, factual presentation, and personal touch is typical of the active and indefatiguable Clark.

Cook, Tom Layden. "The Nature and Use of Airspace." Appraisal Journal 39 (July 1971): 346-361.

Values arising in conjunction with transportation structures. Several examples are cited including the George Washington Bridge over the Hudson River, and Montreal Metro terminals. See also Williams and McNichol.

Davis, Donald F. "Mass Transit and Private Ownership: An Alternative Perspective on the Case of Toronto." Urban History Review No. 3-78 (1978): 60-98.

Claims that early electric railways functioned as "loss leaders" for the real estate business.

Dewees, D.N. "The Effect of a Subway on Residential Property Values in Toronto." Journal of Urban Economics 3 (October 1976): 357-369.

Without identifying an increase in land value as a "benefit," Dewees's careful studies of the Toronto case, of which this is one, show that the subway was accompanied by changes in site rent from 20 to 200 times in high density areas.

Dolman, John P. and Seymour, Charles F. "Valuation of Transportation/Communication Corridors." Appraisal Journal 46 (October 1978): 509-522.

Interesting as a valuation exercise of a Right-of-Way in itself. How much is a corridor worth? It is the end points that make the primary difference.

Edge, Garth. ALRT Economic Benefits Study. Vancouver, B.C.: Urban Transit Authority, 1981.

An attempt to estimate the likely benefits arising from the building of the Advanced Light Rapid Transit (ALRT) in Vancouver. Includes descriptions of existing development around each of the proposed stations and judgments as to potential development in broad terms. Suffers from weak economic analysis and no bibliography. Of local interest.

Foster, C.D. and Beesley, M.E. "Estimating the Social Benefits of Constructing an Underground Railway in London." Journal of the Royal Statistical Society 126/1 (1963): 46-58.

An important early cost benefit study in the transportation field, typical in exclusion of land values from consideration on the grounds of double counting.

Getz, Malcolm. "A Model of the Impact of Transportation Investment on Land Rents." Journal of Public Economics 4 (February 1975): 57-74.

A scholarly study, unique in that it seeks to identify the beneficiaries of transportation investment in order to identify also "optimal financing schemes."

Gladstone Associates. Transportation and Urban Economic Development. Prepared for Economic Development Administration, U.S. Department of Commerce, Washington, D.C. November 1977.

A general review of present key policy and program considerations in the U.S. underlying transportation and economic development. Recommendations for specific initiatives. A useful, straightforward meaty report, and, though evidently speedily prepared, far superior to most others of its genre.

Golden, Jay S. Land Values in Chicago: Before and After Expressway Construction. Chicago: Chicago Area Transportation Study, 1968.

Report of an intensive search into land values in Chicago at the time of freeway construction.

Heggie, Ian G. Transport Engineering Economics. London: McGraw-Hill, 1972.

Textbook discussion includes reference to the "net benefits associated with a transport improvement." Heggie states that changes in property values are normally excluded from such evaluations, in part because they "represent an extremely crude" and imperfect measure of the net benefits.

Hennes, Robert G. "Freeways and the Suburbs." Traffic Quarterly 4 (October 1956): 494-508.

An interesting early impact study done by a professor of civil engineering at the University of Washington using data locally generated.

Highway Research Board. Highway Research Abstracts. Washington, D.C.: 1921- .

The Highway Research Board (now Transportation Research Board) is a non-governmental group in the U.S. Its publications include bibliographies, a range of special technical studies, and the research abstracts. A valuable reference aid to the student.

Luttrell, Ralph J. "Eminent Domain -- the Realtor, the Appraiser, and the Lawyer." Appraisal Journal 31 (October 1963): 493-500.

The author is a lawyer who served 24 years as Chief of the Land Acquisition Section, Lands Division, U.S. Department of Justice. The valuation of benefits is often a part of the task of valuation for expropriation for public services.

Macón, Jorge and Mañon, Jose Merino. Financing Urban and Rural Development through Betterment Levies. New York: Praeger, 1977.

The benefits of large public works are derived from location. Latin American cases described include among others, a highway corridor and a metropolitan subway.

Miller, Stanley F., Jr. Effects of Proposed Highway Improvements on Property Values. National Cooperative Highway Research Program Report 114. Washington, D.C.: Highways Research Board, 1971.

The purpose of the study was to assemble statutory and case law existing on the subject of enhancement or diminution of value. Particular cases were investigated in Alabama, California, Maryland, Minnesota and Texas. An outstanding reference paper.

Payne & Maxie Consultants, and Blayney-Dyett, Urban and Regional Planners. The Land Use and Urban Development Impacts of Beltways. 4 v. Washington, D.C.: U.S. Federal Highway Administration, 1980.

An evaluation of impacts in eight cities -- Atlanta, Baltimore, Columbus, Louisville, Minneapolis, Omaha, Raleigh and San Antonio. Volume 4 describes each of the cases in detail. Volume 2 includes valuable bibiographic appendices related to highway impact. Volume 3 is a 'guidebook' on how to evaluate impact; criteria are almost identical to Schaenman and Muller. Volume 1, the Summary, includes good diagrams.

Planning Collaborative Inc., and Read Voorhees & Associates Ltd. Land Value Capture. Ottawa: Ministry of State for Urban Affairs, 1979. (Working Paper.)

Strictly speaking, not a benefit study. Includes, however, original data on the Yonge/Lawrence subway intersection in Toronto. Square foot site values rose measurably at expectation of the subway, upon public announcement of the subway, and again during construction.

Schaenman, Philip S. and Muller, Thomas. Measuring Impacts of Land Development. Washington, D.C.: The Urban Institute, 1974.

According to these authors, the measures for evaluating the impact of land development number forty-eight. The measures vary from a change in the rate of water shortage incidents, crime rates, and numbers of wild life that might be threatened. A useful list of particulars for some purposes.

Scheiner, James I. and Starling, Grover. "The Political Economy of Free-Fare Transit." Urban Affairs Quarterly 10 (December 1974): 170-184.

The authors enumerate the benefits of making bus fares free, viewing that policy as an alternative to investing in capital-intensive transit. (See also Tideman.)

Scott, Allen J. Land Rent, Land Use and Transport. Research Report 27. Joint Program in Transportation, University of Toronto-York University, 1975.

Mathematical but interesting discussion of rent returns which "makes clear the transmission of the linchpin rent" throughout the urban system.

Scott, Allen J. The Urban Land Nexus and the State. London: Pion, 1980.

A historical materialist in search of a viable theory of planning. Urban transport is "only a special case of all politically furnished goods." An excellent non-dogmatic densely written book.

Shaw, Ronald E. Erie Water West. A History of the Erie Canal 1792-1854. Lexington: University of Kentucky Press, 1966.

This history of the Erie Canal, an epic feat of transportation engineering, describes a number of the benefits ensuing. The story is instructive also in respect to controversies surrounding modern transit building.

Spengler, Edwin H. Land Values in New York in Relation to Transit Facilities. New York: Columbia University Press, 1930.

The earliest, and until recently the only, scholarly transit impact study. Spengler was provided access to extensive and detailed data, which he in turn provides to the interested reader.

Stern, Martin O. and Ayres, Robert U. "Transportation Outlays: Who Pays and Who Benefits?" in C. Lowell Harriss, ed. Government Spending and Land Values. The Committee on Taxation, Resources and Economic Development (TRED) Publication 6. Madison, Wisc.: University of Wisconsin Press, 1973, 117-154.

A significant and wide-ranging paper which makes special reference to the Central Business District. The figures used are from a 1970 study carried out in Lower Manhattan.

Tideman, Henry. "Public Transport and Land Values." Land & Liberty 85 (March/April 1978): 27-29.

An unusual but nicely stated argument for free-fare mass transit. (See also Scheiner.)

U.S. Urban Advisers to the Federal Highway Administration. The Freeway in the City; Principles of Planning and Design. Prepared for Secretary of Transportation, Washington, D.C., 1968.

An early survey of freeway effects relevant to the question of "value capture." Gladstone (1977) relies on it as "a pertinent piece of literature."

Wacher, T.R. "The Effects of Rapid Transit on Urban Property Development." Chartered Surveyor 102 (March 1970): 420-428.

An official of the London Transport Executive examines the impact of the Toronto subway and compares it with what may be expected of the Victoria line in London, England.

Whitbeck, R.H. "Selection of Urban Sites." in Michael Rostovtzeff et al. Urban Land Economics. Institute for Research on Land Economics Publication. Ann Arbor, Mich.: Edwards Brothers, 1922, 89-105.

A geographer at the University of Wisconsin links the pattern of urban development with transportation. A fundamental lecture packed with information on early U.S. urban sites.

Williams, Lawrence E. and McNichol, Daniel J. "Valuation of Air Space." Appraisal Journal 41 (April 1973): 234-253.

An extensive article on the raison d'etre and the techniques. (See also Cook.)

Young, J.C. "Economic Effects of Expressways on Business and Land Values." Traffic Quarterly 5 (October 1951): 353-368.

Young measured the effects of expressways mainly with reference to retail sales, but looked also at real estate transactions, as well as actual development on frontage roads.

5. MEASURING BENEFITS -- LAND VALUE

Adams, Thomas. Population, Land Values and Government. in Regional Survey of New York and Its Environs. Regional Plan of New York and Its Environs, v.2. New York: 1929.

Part II of this volume deals in some detail with the nature and measurement of land values; excellent discussion is accompanied by explanatory graphs and maps. An incomparable production.

Alexander, John W. Economic Geography. Englewood Cliffs, N.J.: Prentice Hall Inc., 1965.

Short summary of the relationship between land values and transportation; reproduces excellent diagrams from Brian Berry correlating land values and pedestrian traffic.

Anstey, Bryan. "Planning and Land Values." Estates Gazette 176 (September 10, 1960): 503-5.

Recommends planners draw isovals as a forecast, and subsequently as a check, of the effectiveness of plans.

Arner, G.B.L. "Land Values." in Michael Rostovtzeff et al. Urban Land Economics. Institute for Research on Land Economics Publication. Ann Arbor, Mich.: Edwards Brothers, 1922, 106-145.

Five excellent lectures based principally on research in New York City. An index of land value for the Borough of Manhattan 1904 to 1921 is produced and is used as a measure of the effects of subway building, war, immigration and other factors. Arner is at pains to demonstrate that the owners of vacant land did not get a good return if they considered not only the taxes paid but the returns from alternative investment.

Arnott, Richard. "Spatial Urban Simulation Models." Plan Canada 17/3,4 (1977): 200-212.

Claims that transportation economists are wrong when they argue that rents are an accurate measurement of transportation effect.

Baine, Richard P. and McMurray, A. Lynn. Toronto, An Urban Study. Toronto: Clark Irwin & Co., 1977.

Photographs, maps, and diagrams throughout from which a good deal can be gleaned as to the relation between, for example, travel times and land values.

Bird, James. Centrality and Cities. London: Routledge & Kegan Paul, 1977.

Stresses the cross-cultural regularities in man's concept of centrality. Relates land rents to the opportunity for external economies which are "of course high in the urban core, the centre of which is sometimes denoted by the peak land value intersection (PLVI)."

Black, J. Thomas and Hoben, James E., eds. Urban Land Markets: Price Indices, Supply Measures, and Public Policy Effects. Urban Land Institute Research Report 30. Washington, D.C.: Urban Land Institute, 1980.

A set of mainly useful papers originally prepared for a symposium held in Washington, D.C. in February 1980. The economists disagreed as to how measurement of land values should be undertaken but not as to whether.

Boyce, David E. "Assessing Impact of Urban Transportation." Transportation Engineering Journal ASCE. 98 (1972): 645-662.

Boyce and others have been testing the impact of rapid transit on land value.

Czamanski, Stanley. "Effects of Public Investments on Urban Land Values." American Institute of Planners Journal 32 (July 1966): 204-217.

Reproduces a map of estimated land values for Baltimore in 1964 and courageously draws a projected map of values for 1980, based on the assumption that mass transit is in place.

Daniels, P.W. and Warnes, A.M. Movement in Cities. Toronto: Methuen, 1980.

Relates land use, and only incidentally land value, to trip generation by public transport.

Dewees, D.N. The Impact of Urban Transportation Investment on Land Value. Research Report 11. University of Toronto/York University Joint Program in Transportation, 1973.

A mathematical construct, using Toronto as the case. Emphasizes the "high cost of walking."

Dewees, D.N. "The Effect of a Subway on Residential Property Value in Toronto." Journal of Urban Economics 3 (October 1976): 357-369.

Another mathematical construct. Analysis of detailed values leads to the conclusion that the major impact of the subway is an "increase in slope of the rent surface with distance from the subway stations ... "

Downing, Paul B. "Estimating Residential Land Value by Multivariate Analysis." in Daniel M. Holland, ed. The Assessment of Land Value. The Committee on Taxation, Resources and Economic Development (TRED) Publication 5. Madison, Wisc.: University of Wisconsin Press, 1970.

The influence of accessibility has been documented by others, time of travel being the preferred measure. Downing, measuring by land value, states that land value is a non-linear function: a one percent increase in distance from the CBD has a greater than one percent influence on residential land value.

Downing, Paul B. "Measuring Urban Land Prices through Multiple Regression Analysis of Actual Sales." in J. Thomas Black and James E. Hoben, eds. Urban Land Markets: Price Indices, Supply Measures, and Public Policy Effects. Urban Land Institute Research Report 30. Washington, D.C.: Urban Land Institute, 1980.

Asserts that the market value of land and in particular its change over time provide valuable information on the net benefits of public projects.

Dunkley, Godfrey. "Society Use Your Land." The Certificated Engineer. Journal of the Institution of Certificated Mechanical and Electrical Engineers, South Africa. Johannesburg. 48 (February 1975): 28-31.

A paper originally prepared for the 1974 Grahamstown Congress of the South African Association for the Advancement of Science. A photograph of a three-dimensional model of Johannesburg land values illustrates the text.

Edge, Garth. ALRT Economic Benefit Study. Vancouver, B.C.: Urban Transit Authority, 1981.

Chapter 15, which is devoted to probable economic land use impacts, includes an unfortunately muddled discussion of land values.

Frankena, Mark W. Urban Transportation Financing: Theory and Policy in Ontario. Toronto: Published for the Ontario Economic Council by University of Toronto Press, 1982.

The major issues dealt with are road pricing, transit fees, and transit subsidies. Question of land values conspicuous by its absence.

Getz, Malcolm. "A Model of the Impact of Transportation Investment on Land Rents." Journal of Public Economics 4 (February 1975) 57-74.

A model to identify the distributional consequences of transportation investments.

Glickman, Norman and Oguri, Yukio. "Modeling the Urban Land Market." Journal of Urban Economics 5 (October 1978): 505-525.

The authors correlated such indices as population density, 'standard points' of land price and distance from the city core, using data for 71 Japanese cities. (See also Hawley.)

Goldberg, Michael A. "An Evaluation of the Interaction Between Urban Transport and Land Use Systems." Land Economics 48 (November 1972):

An academic reviews and evaluates contemporary discussion of the relationship between land value and density.

Golden, Jay S. Land Values in Chicago: Before and After Expressway Construction. Chicago: Chicago Area Transportation Study, 1968.

Report of intensive research into land values in Chicago at the time of freeway construction.

Grimes, Orville F. Jr. "Urban Land and Public Policy: Social Appropriation of Betterment." in Paul B. Downing, ed. Local Service Pricing Policies and Their Effect on Urban Spatial Structure. Vancouver: University of British Columbia Press, 1977, 360-432.

Originally a staff working paper for the International Bank for Reconstruction and Development, this study investigates the economics of urban land value increments in certain client countries, mainly in Asia.

Harris, Britten. Basic Assumptions for a Simulation of the Urban Residential Housing and Land Market. Philadelphia: University of Pennsylvania, 1966.

Proposes a model that, he claims, will produce measurements of land value "which should be extremely useful in planning redevelopment, industrial location, fiscal policy, and the like."

Hawley, Amos. "Land Values in Okayama, Japan, 1940 and 1952." American Journal of Sociology 60 (March 1955): 487-492.

A centripetal tendency toward maximum accessibility, with the resultant competition for sites, operates in Okayama as in cities in the United States and Europe.

Heenan, G. Warren. "Rapid Transit and Property Value." Community Planning Review 7 (Spring 1967): 5-9.

An early booster article making reference to history of Yonge Street project from 1946, effect on land values, and development.

Heenan, G. Warren. "The Economic Effect of Rapid Transit on Real Estate Development." Appraisal Journal 36 (April 1968): 213-224.

As above, but with more specific citation of value increase, and relation to zoning policies.

Heggie, Ian G. Transport Engineering Economics. London: McGraw Hill, 1972.

Claims that land values represent an extremely crude measure of the net benefits associated with a transport improvement.

Herps, M.D. "A Study of the Official Land Valuations of the Australian States and of Their Capacity to Raise Revenues from Land Transactions." Advice to the Commonwealth Grants Commission. in v.3 Report on State Tax Sharing Entitlements 1981. v.3. Commonwealth Grants Commission. Canberra: Australian Government Publishing Service, 1981.

A survey of law in each of the six Australian States pertaining to land valuation, land taxes and rentals, and a survey of practice in respect to these matters, prepared with the object of putting the States on an equal footing for receipt of central government grants.

Herrick, Charles. "The Effects of Parks Upon Land and Real Estate Values." American Institute of Planners Journal 6/4 (1940): 94-98.

In this early paper Herrick defends his statistical methods in detail and with common sense.

Hurd, Richard. Principles of City Land Values. New York: The Record and Guide, 1903.

An early reference for appraisers which, for simplicity, grasp and illustrative material is in a class by itself.

Kitchen, James W. and Henden, William S. "Land Values Adjacent to an Urban Neighborhood Park." Land Economics 43 (August 1967): 357-360.

Demonstrates a definite relationship between land values and proximity to parks.

Koutsopoulos, K.C. Modeling Mass Transit Impact on Urban Land Values. Technical Report 67. Institute of Urban and Regional Research, University of Iowa, 1976.

Develops an improved model for studying the impact of mass transit on proximate land values; based on his work at University of Denver, Department of Geography.

Macón, Jorge and Mañon, Jose Merino. Financing Urban and Rural Development through Betterment Levies. New York: Praeger, 1977.

The authors state that the increase in land value resulting from a public works project simply consists of the differential benefits expected from the project. They review the conceptual framework of benefits area financing, examine the experience of 11 countries in Latin America, and provide numerous tables of technical information. An outstanding study, both scholarly and practical.

Mann, W. Merle and Mann, Jack K. "Analysis of the Influence of the Pearl River Reservoir on Land Prices in the Area." Appraisal Journal 36 (January 1968): 42-51.

A Water Supply District in Mississippi officially announced in March 1959 the creation of a 38,000 acre reservoir. Land prices are studied as far back as 1950.

Rowels, S.T. and Scott, Allen J. The Urban Land Question. Paper 10. Department of Urban and Regional Planning, University of Toronto, 1976.

Urban floor space, "a true commodity," is not the same as urban land which is "clearly a non-commodity." A thoughtful paper.

Spengler, Edwin H. Land Values in New York in Relation to Transit Facilities. New York: Columbia University Press, 1930.

The entire history of New York, in Spengler's opinion, had been closely reflected in land values. He carefully documented the variable benefits attributable to those subways constructed after 1905.

Stabler, Jack C. and Kaulback, Peter. "Impact and Readjustment." Plan Canada 17/3,4 (1977): 213-217.

Some notes on changes in pedestrian counts and changes in land values in downtown Saskatoon.

Stern, Martin O. and Ayres, Robert U. "Transportation Outlays: Who Pays and Who Benefits?" in C. Lowell Harriss, ed. Government Spending and Land Values. The Committee on Taxation, Resources and Economic Development (TRED) Publication 6. Madison, Wisc.: University of Wisconsin Press, 1973, 117-154.

The authors develop equations that relate density to land value and accessibility to land value. The effect of accessibility is characterized by a large leverage factor; striking examples are given. Important policy implications flow from their several "plausible points."

6. EVALUATION OF "VALUE CAPTURE" MECHANISMS

A. Annual tax on "real property" value (value of building and site)

Arnott, Richard and MacKinnon, James G. "The Effects of the Property Tax: A General Equilibrium Simulation." Journal of Urban Economics 4 (October 1977): 389-407.

A recent background article, useful in that it typifies the approach of those analysts who view real property as an undifferentiated amalgam in respect to tax effects.

Bahl, Roy W. ed. The Taxation of Urban Property in Less Developed Countries. The Committee on Taxation, Resources and Economic Development (TRED) Publication 10. Madison, Wisc.: University of Wisconsin Press, 1979.

Maintains the high standard of previous TRED publications in melding the papers of scholars and practising professionals.

Authors deal with practical problems, providing critical descriptions of a wide range of revenue methods used.

Becker, Arthur P. "Principles of Taxing Land and Buildings for Economic Development." in Arthur P. Becker, ed. Land and Building Taxes: Their Effect on Economic Development. The Committee on Taxation, Resources and Economic Development (TRED) Publication 4. Madison, Wisc.: University of Wisconsin Press, 1969, 11-47.

Becker reviews three theoretical criticisms of the general property tax a) double taxation b) regressivity c) depressing effect on productivity. He differentiates between types of property and describes the trend of exemptions as significant. He completes the paper with a careful discussion of micro- and macro-effects. His editorial conclusion to the volume (pp. 287-298) is also useful.

Bordier, M. Paul. Orientation et financement de la politique fonciere V Plan 1966-1970. Contribution aux etudes du Groupe foncier. Paris: Min. Finance, 1966.

After concluding that the value of urban land is due to society, M. Bordier, Inspector of Finances for the French government and chairman of the "Land Studies Group," analyses a variety of land policy measures already in use, either in France or elsewhere. Difficult reading even for those of French language because of economic/technical terms; nevertheless, rewarding in its philosophical perspectives and useful for its statistical and graphic presentation of land prices in France.

Gaffney, M. Mason. "Property Taxation and the Frequency of Urban Renewal." Proceedings of the 57th Annual Conference on Taxation, National Tax Association, September 14-17, 1964. Pittsburgh: 272-285.

The insight this analysis of urban renewal affords is directly relevant to questions of density of development and timing of development which affect a transit system's effectiveness and efficiency.

Gaffney, M. Mason. "The Property Tax is a Progressive Tax." Proceedings of the 64th Annual Conference, National Tax Association, 1972. 408-426.

Netzer, Dick. Economics of the Property Tax. Washington, D.C.: The Brookings Institution, 1966.

A standard reference by a respected economist.

Planning Collaborative Inc. and Read Voorhees & Associates Ltd. Land Value Capture. Ottawa: Ministry of State for Urban Affairs, 1979. (Working Paper.)

Four mechanisms are evaluated not only against their capture potential but against considerations of "Community Preservation," "Urban Design" and "Transit System Viability." The latter is defined as "concentration and distribution of development and ridership along the transit systems." A disappointing paper: promises more than it delivers.

Rawson, Mary. Property Taxation and Urban Development: Effects of the Property Tax on City Growth and Change. Research Monograph 4. Washington, D.C.: Urban Land Institute, 1961.

A 1959 Master's thesis in planning notable both for the detail supplied on the case studied (Burnaby, B.C.) and a bibliography extensive for the day. The real property tax is presented as two taxes, or rather, as one tax levied on unlike tax objects.

B. Annual or incremental tax on site value only (including special assessments)

Arner, G.B.L. "Land Values." in Michael Rostovtzeff et al. Urban Land Economics. Institute for Research on Land Economics Publication. Ann Arbor, Mich.: Edwards Brothers, 1922, 106-145.

Lecture five in the Arner series compares the untaxed value of land in Manhattan (1906 to 1921) with the taxed value.

Arner, G.B.L. "Land Values in New York City." Quarterly Journal of Economics 36 (August 1922): 545-580.

A tightened up version of the lectures cited above with additional tables and succinctly stated conclusions.

Dickinson, Helena. Appendix II of Part II of Thomas Adams. Population, Land Values and Government. in Regional Survey of New York and Its Environs. Regional Plan of New York and Its Environs, v.2. New York: 1929, 187-192.

Dickinson makes an excellent summary of Arner's 1922 report on which she too had worked, and adds figures for 1926.

Getz, Malcolm. "A Model of the Impact of Transportation Investment on Land Rents." Journal of Public Economics 4 (February 1975): 57-74.

In open economies, as American cities are, landowners rather than commuters are the beneficiaries of transportation investments. Getz concludes that "the optimal taxing scheme" to

finance transportation investment is a tax on site value which he calls the "Henry George property tax."

Grieson, Ronald E. "The Economics of Property Taxes and Land Values." Journal of Urban Economics 1 (October 1974): 367-381.

Concludes that the most efficient "property" tax is an ad valorem land tax, and goes on to say, "We have again so to speak 'proven' the efficiency of land taxes, but more importantly we have shown that property taxes can achieve the same result by means of judicious use of assessment ratios ..."

Grimes, Orville F. Jr. "Urban Land and Public Policy: Social Appropriation of Betterment." in Paul B. Downing, ed. Local Service Pricing Policies and Their Effect on Urban Spatial Structure. Vancouver: University of British Columbia Press, 1977, 360-432.

Grimes investigates "the economics of urban land value increments." An adequate conceptual section is followed by a more useful and detailed description of practice in selected countries.

Henley, Albert T. "Land Value Taxation by California Irrigation Districts." in Arthur P. Becker ed. Land and Building Taxes. The Committee on Taxation, Resources and Economic Development (TRED) Publication 4. Madison, Wisc.: University of Wisconsin Press, 1969, 137-145.

This article provides a short history of Public District legislation in California and an interesting reference to contrasting development in two rural towns which finance irrigation by different methods.

Lent, George E. The Taxation of Land Value. International Monetary Fund Staff Papers Vol. 14 No. 1. Washington, D.C.: 1967, 89-123.

A review of international experience, superceded in some respects by Grimes. Discusses a) recurrent annual tax on land value b) periodic tax on land value increments c) special assessments. Outlines some of the technical considerations frequently raised.

Lindholm, R.W. "Land Taxation and Economic Development." Land Economics 41 (May 1965): 121-130.

A dispassionate and relentless enumeration of tax effects, ostensibly in relation to conditions in developing nations.

Macón, Jorge and Manon, Jose Merino. Financing Urban and Rural Development through Betterment Levies. New York: Praeger, 1977.

The authors clearly opt for levies on land values as preferable to levies on land and buildings; although apparently for reasons of political acceptability in the Latin American context, they do not insist on completely exempting building value.

Manning, Harry J. "Johannesburg's Betterment Tax." Australian Planning Institute Journal 7/2 (1969): 43-45.

This tax, called a "development contribution", became effective in January 1966. It was instituted smoothly because site value rating has been the standard method of local taxation since 1918: as a result the people understand the principle, and there is a skilled valuation staff.

Manning, Harry J. "An Investigation of Property Rating Systems in South Africa and Their Possible Influence in Central Business Districts." Australian Planning Institute Journal 7/2 (1969): 77-87.

In comparing Johannesburg with Durban and Capetown, both of which tax buildings, Manning concludes that the tax on site value alone "does more, and does it with appreciable effect," to stimulate redevelopment of underdeveloped property. (See analysis of Gaffney, Sec. 6A above.)

Pigou, A.C. A Study in Public Finance. 3rd ed. London: Macmillan & Co. Ltd., 1951.

Rival schemes of taxing are examined from three aspects 1) announcement aspect 2) distributional aspects 3) techniques and cost of administration. As a taxable object, what Pigou calls the "public value" of land rates well on all three counts.

Pollock, Richard L. and Shoup, Donald C. An Estimate of the Effect of Site Value Taxation on the Optimal Capital Intensity of Urban Land Development. School of Architecture and Urban Planning, University of California, Los Angeles, 1975.

Using data generated from investor decision-making in Hawaii the authors find that a shift to site value tax can have a positive effect.

Rawson, Mary. Property Taxation and Urban Development: Effects of the Property Tax on City Growth and Change. Research Monograph 4. Washington, D.C.: Urban Land Institute, 1961.

Analysis directs attention not only to the negative effects of taxing buildings but to the importance of the benefit principle inherent in the site value portion of "property tax" levy.

Rhoads, William G. and Bird, Richard M. "The Valorization Tax in Colombia: An Example for other Developing Countries?" in Arthur P. Becker, ed. Land and Building Taxes. The Committee on Taxation, Resources and Economic Development (TRED) Publication 4. Madison, Wisc.: University of Wisconsin Press, 1969, 200-347.

A meticulous description and analysis of the "valorization" tax as used in certain cities in Colombia.

Spengler, Edwin H. "The Taxation of Urban Land-Value Increments." Journal of Land and Public Utility Economics 17 (February 1941): 54-58.

As an alternative to special assessments, Spengler proposes a regular small tax on land value increases.

Vickrey, William S. "Defining Land Value for Taxation Purposes." in Daniel M. Holland, ed. The Assessment of Land Value. The Committee on Taxation, Resources and Economic Development (TRED) Publication 5. Madison, Wisc.: University of Wisconsin Press, 1970, 25-36.

Vickrey views taxation as a practical matter. The desirable consequences are 1) neutrality 2) yield 3) nonconfiscation 4) legitimacy. He reminds us that even when no one is injured by a proposal, unanimous support is not guaranteed. "Many may object ... in the hope that some alternative ... would give them a greater share of the benefits." His advice is to stick close to fundamental principles to "minimize opportunities for such recalcitrance."

C. Excess condemnation

Clarke, Richard. "How to Pay for a New Rail System." Land & Liberty 88 (September/October 1981): 90-91.

An authority on Hong Kong's land tenure system, a leasehold system, details the financing of extensions to the Main Transit Railway. The author notes that the MTR will be able to capture "a significant part of the cost of the system" from the sale of air rights but regrets that the major part of the increase in land value "will accrue to private leaseholders of land served by the system."

Ruth, Herman D. and Associates. "The Impact of Rapid Transit on Urban Development: BART as a Case Study." Transportation, Engineers Institute, Tel Aviv, Israel. (1974): 24-35.

A history of the Bay Area Rapid Transit from 1937 to the date of writing. Claims that BART has had a considerable impact on the

area around BART stations and sees this as a justification for excess condemnation, in the manner of both London and Stockholm.

Sandilands, Roger. "Lesson for the U.K." Land & Liberty 90 (July/August 1983): 66-67.

In examining the differences in economic strategy followed by authorities in the U.K. and in Singapore, reference is made to the financing of Mass Rapid Transit in Singapore by means of land sales.

D. Joint Development and "Deal Making"

Cook, Thomas Layden. "The Nature and Use of Airspace." Appraisal Journal 39 (July 1971): 346-361.

Several examples of joint development in conjunction with nodes on the transportation network; in some of the cited cases the "joint development" is between private owners, not a matter of public sharing.

Edge, Garth. ALRT Economic Benefits Study. Vancouver, B.C.: Urban Transit Authority, 1981.

The developer, the permanent lender and the public sector are the major participants in "deal making"; value capture for the public sector is seen as but a minor objective.

Gladstone Associates. Transportation and Urban Economic Development. Prepared for Economic Development Administration, U.S. Department of Commerce, Washington, D.C. November 1977.

Gladstone found the literature on transportation and urban economic development "almost non-existent." Discussion of the "Young amendment," which gave the U.S. Urban Mass Transit Administration legislative authority to create transit corridor authorities, leads to an enumeration of joint development projects.

Gladstone Associates, with Research Division, Urban Land Institute. Joint Development: Making the Real Estate - Transit Connection. Washington, D.C.: Urban Land Institute, 1979.

Gladstone explores further the technique of joint development and "deal-making" as a method of "value capture" in connection with public investment in rapid transit lines. This study is particularly helpful to the commercial developers' point of view but masks the issue of a special public claim to value.

E. Replotting

Archer, Ray. Land Pooling for Planned Urban Development in Perth. Canberra, A.C.T.: Metropolitan Research Trust, 1977.

The Research Director of the Trust reviews the present basis of land pooling in Perth, points out its shortcomings as a tool in the urban fringe, and makes proposals for improvement.

Doebele, William A. ed. Land Readjustment. Toronto: Lexington Books, D.C. Heath & Co., 1982.

Articles by ten contributing authors describe how replotting has been employed by governments to recapture, at least in part, the "wealth" created by urbanization. This method, variously termed land pooling, land readjustment, and land consolidation, is described as an important tool in Taiwan, Korea, Japan, and West Germany. Canadian experience is not referenced.

O'Brien, R. David. "Replotting." Annual Report and Convention Proceedings. Public Works Association of British Columbia, 1967. 83-93.

Describes the legal basis and technique of land exchange under the British Columbia legislation extant since 1925, and the occasions on which it can be used to most advantage, including public recoupment of inherent value.

O'Brien, R. David. "Replotting." The Link. Journal of the Corporation of B.C. Land Surveyors. 6 (June 1982): 17-20.

Having completed more than 80 replotting schemes, the most experienced "replotter" in Canada gives practical advice.

7. USEFUL ILLUSTRATIONS

Adams, Thomas. Population, Land Values and Government. in Regional Survey of New York and Its Environs. Regional Plan of New York and Its Environs, v.2. New York: 1929.

Maps show population and land values correlated, New York and environs about 1923.

Alexander, John W. Economic Geography. Englewood Cliffs, N.J.: Prentice Hall Inc., 1965.

Reproduces excellent diagrams from Berry relating to land values and pedestrian traffic.

Baine, Richard P. and McMurray, A. Lynn. Toronto, An Urban Study. Toronto: Clarke Irwin & Co., 1977.

Photographs, maps, and diagrams throughout from which a good deal can be gleaned as to the relation between time, land use, and travel patterns. Travel time contours (1973) for Toronto by car and by subway are contrasted.

Berry, J.L. Brian and Gillard, Quentin. The Changing Shape of Metropolitan America: Commuting Patterns, Urban Fields, and Decentralization Processes 1960-1970, Cambridge, Mass.: Ballinger Pub. Co., 1977.

These authors produce a set of commuting maps for metropolitan census areas in the United States.

Berry, J.L. Brian and Kasarda, John D. Contemporary Urban Ecology. New York: Macmillan, 1977.

The relationship of density and distance over time. Diagrams.

Boorse, J.W., Jr. Rapid Transit in Canada. Philadelphia, Pa.: Almo Press, 1967.

A few interesting photographs depicting early urban rail commuter development in Canada, including construction of Montreal Metro.

Calgary, Alberta. City Planning Department. Chinook Station Area Land Use Study. 1979.

The Chinook "impact area" is outlined.

Couglin, Robt. E and Hammer, Thos. R. "Estimating the Benefits of Stream Valley and Open Space Preservation Projects." in C. Lowell Harriss, ed. Government Spending and Land Values. The Committee on Taxation, Resources and Economic Development (TRED) Publication 6. Madison, Wisc.: University of Wisconsin Press, 1973, 155-170.

Includes a graph showing the park influence in dollars per house lot relative to distance from the park.

Czamanski, Stanley. "Effects of Public Investments on Urban Land Values." American Institute of Planners Journal 32 (July 1966): 204-217.

Article includes examples of isoval maps (see Anstey) drawn in expectation of rapid transit installation.

Dunkley, Godfrey. "Society Use Your Land." The Certificated Engineer. Journal of the Institution of Certificated Mechanical and Electrical Engineers, South Africa. Johannesburg. 48 (February 1975): 28-31.

A striking photograph of a three-dimensional model of land values in Johannesburg illustrates the text.

Knight, Robert L. and Trygg, Lisa L. Land Use Impacts of Rapid Transit: Implications of Recent Experience: Final Report. (DeLeuw, Cather & Co.) Washington, D.C.: U.S. Department of Transportation, 1977.

Volume One, the "Final Report," includes a stylized figure adapted from Boyce showing transit station "market boundaries" and "travel-savings contours" for the Lindenwold Line in New Jersey.

Payne & Maxie Consultants, and Blayney-Dyett, Urban and Regional Planners. The Land Use and Urban Development Impacts of Beltways. 4 v. Washington, D.C.: U.S. Federal Highway Administration, 1980.

Volume 1, the Summary, describes the evolution of beltways in eight representative cities; includes simplified diagrams.

Rawson, Mary, ed. Subdivision Casebook. Vancouver, B.C.: Planning Institute of British Columbia, 1963.

Fifteen illustrated examples of subdivision redesign including a half dozen cases of replotting.

Stabler, Jack C. and Kaulback, Peter. "Impact and Readjustment. A Study of the Effect of Land Use Conversion on an Established Central Business District." Plan Canada 17/3,4 (1977): 213-217.

Text illustrated with "isometrics" of assessed land values in a small business district.

Vass, B. Toronto: A Photo Study of Urban Development. Toronto: McGraw Hill Ryerson, 1971.

Excellent visual comparisons of changing land use in Toronto through pairing aerial photos taken in the early 1950's with others taken up to 20 years later; several pairs of photos of designated transit station sites on the Yonge Street line.

8. MISCELLANEOUS

Bourne, Larry S. Private Redevelopment of the Central City. Spatial Processes of Structural Change in the City of Toronto. Research paper 112. Department of Geography, University of Chicago, 1967.

Notes that the Toronto subway altered accessibility. Acknowledges a differential between land and building values but states that "comprehensive land value data are not available" for Toronto.

Bryant, G.W. "Land Ownership and City Development." Plan Canada 4/1 (1963): 43-50.

Refers to North Kent boom in land values owing to large tracts having been brought into commuter range of London by extension of rail electrification.

Chim, Jim and Tebinka, Richard. "Public Transit in the Eighties." Paper presented to the CIP Conference, Regina, July 1981. Extract in CIP forum Special Issue (February 1982): 19-20.

Transit tried to compete with the auto in Edmonton's low density suburbs in the 1970's; transit began losing money in 1971.

Clark, Colin. Population Growth and Land Use. London: Macmillan, 1967.

This whole book, which marshals facts and opinions from far and wide, is extremely original. Charts, graphs, tables and maps are reproduced from many sources.

Gaffney, Mason. "When to Build What." in Paul B. Downing, ed. Local Service Pricing Policies and Their Effect on Urban Spatial Structure. Vancouver, B.C.: University of British Columbia Press, 1977.

An unusual paper obliquely relevant to the question of how to pay for rapid transit. It deals with when to replace a collection of individual "apparatuses" with a mass system, for example, private wells by a water supply or private cars by mass transit.

Hillman, Mayer and Whalley, Anne. "Walking, the Neglected Transport Mode." in World Conference on Transportation Research 1980. v.2, 1244-1254.

Title explains the text. Authors claim walking meets one-sixth of the total personal transport need.

Lee, Douglass B., Jr. Making the Concept of Equity Operational. Technical Report 97. Institute of Urban and Regional Research, University of Iowa, 1978.

Analyzes the effect of BART financing (sales tax) on three income groups. The "net benefit" to those with low incomes is a minus quanity.

Smith, Ian and George, Mary-Ann. "Land-Use Planning and Transit Effectiveness and Efficiency Concerns." Paper presented to the CIP Conference, Regina, July 1981. Extract in CIP forum Special Issue (February 1982): 21-22.

The density of development and the timing of development clearly affect the economy of a transit system.

Solomon, Lawrence. Energy Shock. Toronto: Doubleday Canada Ltd., 1980.

A short course on the history of monopolies, with substantial sections relevant to transit. Opinionated and interesting.

INDEX OF AUTHORS
by Relevant Section

Abouchar	4
Adams	5,7
Alexander	5,7
Altshuler	1
Anstey	5
Archer	6E
Arner	5,6B
Arnott	5,6A
Ayres (see Stern)	4,5
Bahl	4,6A
Baine	5,7
Balfour	4
Barrell	4
Bay	4
Beach	3
Becker	6A
Beesley	1,2,4
Berechman (see Paaswell)	2
Berkeley	4
Berry	7
Bird, J.	5
Bird, R. (see Rhoads)	6B
Black	5
Blayney	2
Blayney Dyett (see Payne)	4,7
Boorse	2,7
Bordier	6A
Bourne	8
Boyce	2,5
British Columbia	2
Bryant	8
Calgary	4,7
Chim	8
Clark	4,8
Clarke	6C
Cook	4,6D
Coughlin	3,7
Czamanski	5,7
Daniels	1,5
Davis	2,4
DeLeuw Cather	2
Dewees	4,5
Dickinson	6B
Doebele	6E
Dolman	4

Dornbusch (see Blayney)	2
Doucet	2
Downing	5
Dunkley	5,7
Edge	4,5,6D
Ferguson	3
Fischler	2
Foster	2,4
Frankena	5
Gaffney	3,6A,8
George (see Smith)	8
Getz	4,5,6B
Gillard (see Berry)	7
Gilli	3
Gladstone	4,6D
Glickman	5
Goldberg	5
Golden	4,5
Gray	1
Grieson	6B
Grimes	5,6B
Haines	1
Hamer	2
Hammer	3,7
Harris	5
Harrison	1
Harriss	3
Hawley	5
Heenan	2,5
Heggie	4,5
Henden (see Kitchen)	5
Henley	6B
Hennes	4
Herbert	2
Herps	5
Herrick	5
Highway	4
Hillman	8
Hoben (see Black)	5
Hoel (see Gray)	1
Howe	3
Hurd	5
Kabak	1
Kasarda (see Berry)	7
Kaulback (see Stabler)	5,7
Kitchen	5
Knight	2,7
Koutsopoulos	5
Lee	8
Lent	6B

Lindholm	6B
Luttrell	4
MacKinnon (see Arnott)	6A
McMurray (see Baine)	5,7
McNichol (see Williams)	4
Macon	3,4,5,6B
Mann	5
Manning	6B
Maxie (see Payne)	4,7
Merino Mañon (see Macón)	3,4,5,6B
Miller	4
Muller (see Schaenman)	4
Netzer	6A
O'Brien	6E
Oguri (see Glickman)	5
Paaswell	2
Parkinson	2
Payne	4,7
Pigou	3,6B
Planning	4,6A
Pollock	6B
Poulton	2
Pucher (see Altshuler)	1
Rawson	6A,6B,7
Read Voorhees (see Planning)	4,6A
Rhoads	6B
Roseman	1
Roweis	5
Ruth	2,6C
Sandilands	6C
Schaenman	4
Scheiner	4
Scott	4,5
Seymour (see Dolman)	4
Shaw	4
Shoup (see Pollock)	6B
Smith	8
Solomon	8
Spengler	2,4,5,6B
Stabler	5,7
Starling (see Scheiner)	4
Stern	4,5
Tebinka (see Chim)	8
Tideman	4
Trygg (see Knight)	2,7
Tucker	3
U.S.	4
Urban (see Gladstone)	6D
Vass	7
Vickrey	6B

Wacher	4
Warner	2
Warnes (see Daniels)	1,5
Whalley (see Hillman)	8
Whitbeck	4
Williams	4
Womack (see Altshuler)	1
World	1
Young	4

POOR

QUALITY

ORIGINAL